

Section 3

Application Summary

The **Application Summary** shall include a brief description of the facility and its process, the type of permit application, the applicable regulation (i.e. 20.2.72.200.A.X, or 20.2.73 NMAC) under which the application is being submitted, and any air quality permit numbers associated with this site. If this facility is to be collocated with another facility, provide details of the other facility including permit number(s). In case of a revision or modification to a facility, provide the lowest level regulatory citation (i.e. 20.2.72.219.B.1.d NMAC) under which the revision or modification is being requested. Also describe the proposed changes from the original permit, how the proposed modification will effect the facility's operations and emissions, de-bottlenecking impacts, and changes to the facility's major/minor status (both PSD & Title V).

Routine or predictable emissions during Startup, Shutdown, and Maintenance (SSM): Provide an overview of how SSM emissions are accounted for in this application. Refer to "Guidance for Submittal of Startup, Shutdown, Maintenance Emissions in Permit Applications (http://www.nmenv.state.nm.us/aqb/permit/app_form.html) for more detailed instructions on SSM emissions.

INTRODUCTION

Freeport-McMoRan Chino Mines Company (Chino Mines) owns and operates the Chino Mine (Chino) facility. The Chino mine is an open-pit copper mine located approximately 15 miles east of Silver City in Grant County, New Mexico (UTM Zone 12 and Air Quality Control Region 12). The primary purpose of the facility is to produce copper cathode using the Solvent Extraction – Electro-winning (SXEW) process and produce copper concentrate using a wet flotation process. Chino is a PSD Minor source under the Prevention of Significant Deterioration (PSD) rules as currently permitted and will remain a minor source after the proposed significant revision. This facility will also remain a major source for operating permit purposes under Title V (20.2.70 NMAC).

Chino Mines is preparing an NSR Significant Revision application to revise their current construction permit, NSR Permit 0298-M6-R6, to resume operation at the Cobre mine portion of the facility. The Cobre mine (Cobre) is located approximately two miles north of the Chino mine. The Cobre operation and Chino operation are contiguous and adjacent, are under the common control (both are subsidiaries of Freeport Minerals Corporation, a subsidiary of Freeport-McMoRan Inc.), and belong to the same major group (i.e., have the same two-digit SIC code), and therefore are considered a single source under NSR Permit 0298-M6-R6. As currently permitted, the primary activity at Cobre consists of a screening plant and the loading of magnetite into over-the-road trucks and rail cars for transport to off-site customers. The proposed operations at Cobre will include mining the adjacent Hanover Mountain (Hanover) and mining the existing Continental Pit (Continental) for copper ore. According to the current mine plan, Hanover will be mined first with Continental Pit becoming active as the quantity of copper ore in Hanover begins to decline. The processing of mined copper ore will remain at Chino. Ore from Hanover and Continental will be sent to the Chino Mine via haul truck on a proposed new haul road connecting the two facilities. Mining of Santa Rita Pit at Chino and the magnetite operation at Cobre will not be affected by the proposed operations at Cobre. Table 1 on the following page lists the permitted emission sources and describes changes proposed by this application.

The project is comprised of two alternative operating scenarios which are described in detail in Section 15. The use of two operating scenarios is proposed as this will allow Chino Mines to adjust the amount and type of emission control necessary based on the mining throughputs.

Table 1. Emission Sources

Unit	Description	Comments
CB EGEN2	Cobre Mine Emergency Generator	These emission sources are not affected by the proposed changes. These engines have historically been emergency units operated during loss of commercial power for a maximum of 500 hours per year each. This application represents these units as exempt equipment under 20.2.72.202.B.3 NMAC.
CB EGEN3	Cobre Mine Emergency Generator	
CB TLNGS	Cobre Mine Tailings	This emission source is not affected by the proposed changes.
CBM HR	Cobre Mine Haul Roads (Continental/Hanover Mining & Magnetite Hauling)	Haul road emissions associated with mining Hanover Mountain and Continental Pit are being added in this application.
CBM MH	Cobre Mine Material Handling (Continental/Hanover Mining & Magnetite Handling)	Material handling emissions associated with mining Hanover Mountain and Continental Pit are being added in this application.
CBM BLST	Cobre Mine Continental/Hanover Blasting	Blasting emissions associated with mining Hanover Mountain and Continental Pit are being added in this application.
CM BLST	Chino Mine Blasting	Emission factors for blasting are being updated in this application. Blasting agent usage is not affected. Hourly emission limits are being removed as hourly rates are not appropriate for this instantaneous emission source.
CM HR	Chino Mine Haul Roads	This emission source is not affected by the proposed changes.
CM MH	Chino Mine Material Handling	The material handling throughputs are not affected by the proposed changes but permitted emission rates are being updated to match current calculations.
CM TLNGS	Chino Mine Tailings	These emission sources are not affected by the proposed changes.
CV-01C	Coarse Ore Conveyor Transfer	
F-2-1-1.4	Westinghouse Gas Turbine - Hurley Power Plant	
F-2-1-1.5	Heat Recovery Steam Generator - Hurley Power Plant	
F-2-2-1	Hurley Power Plant - Cooling Tower	
FLTR/BLND	Filter/Blending Plant	
GDF	Gasoline Dispensing Facilities	
IC-01	Molybdenum Plant Wet Scrubber	
LHS-01	Ivanhoe Concentrator Lime Handling System	
LUS-01	Ivanhoe Concentrator Lime Unloading System	
PC DUMP	Primary Crusher Dump Pocket	
PC-01	Primary Crusher	
SAG-F1	SAG Mill Feeders No. 1 and No. 2	
SCDP	Stacker Conveyor	
CH SCRNL	Chino Screening Plant Material Handling	
CB SCRNL	Cobre Screening Plant Material Handling	
CH SCRNL ENG	Chino Screening Plant Engine	
CB SCRNL ENG	Cobre Screening Plant Engine	
SXEW 10MST	Solvent Extraction and Electrowinning (SXEW) Plant Ten Mixer/Settler Tanks	The calculations were updated to include diluent ORFOM SX-80.
SXEW Boiler No. 1	SXEW Plant Boiler No. 1	These emission sources are not affected by the proposed changes.
SXEW Boiler No. 2	SXEW Plant Boiler No. 2	
SXEW Boiler No. 3	SXEW Plant Boiler No. 3	
SXEW RT	SXEW Plant Raffinate Tank	The calculations were updated to include diluent ORFOM SX-80.
SXEW SAT	SXEW Plant Acid Tankhouse	Calculations for this unit were updated; wind speed was changed from 6.49 mph to 10 mph based on recent on-site meteorological tower data.

Section 4

Process Flow Sheet

A **process flow sheet** and/or block diagram indicating the individual equipment, all emission points and types of control applied to those points. The unit numbering system should be consistent throughout this application.

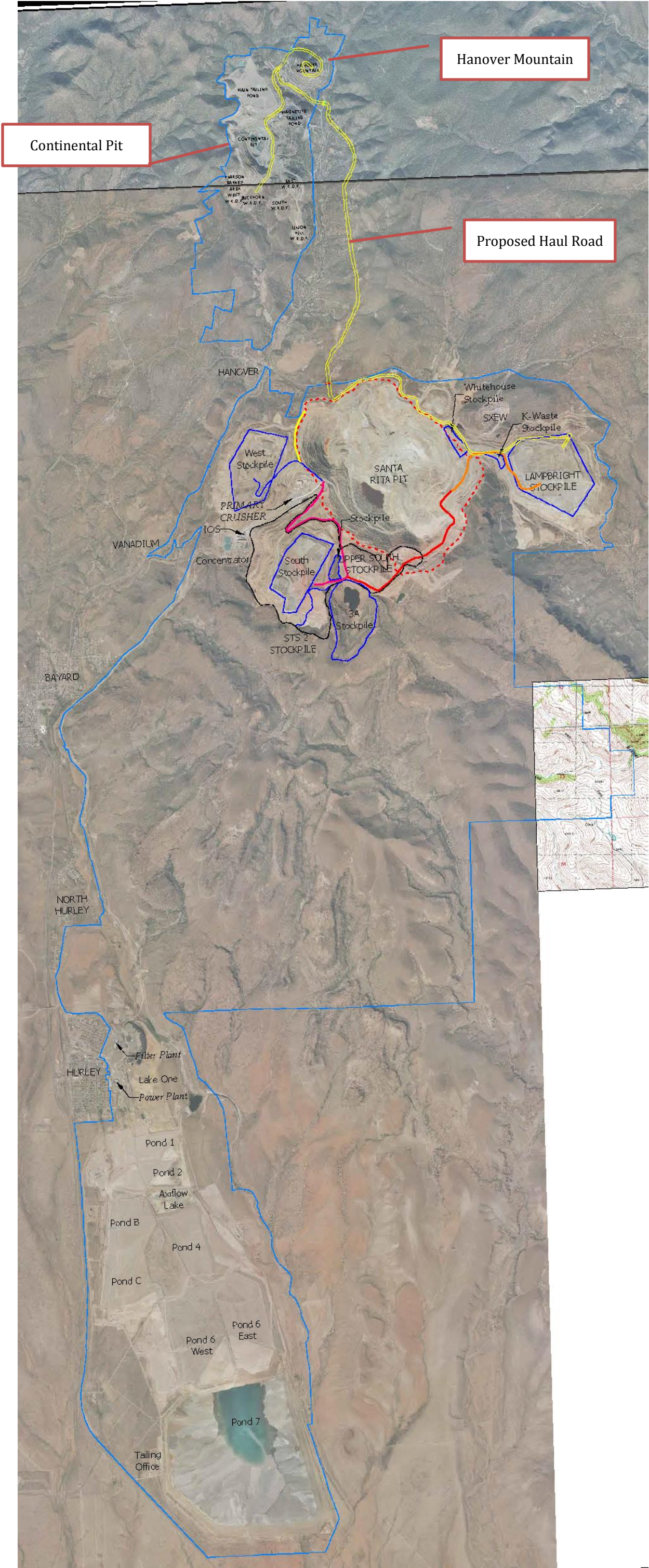
A process flow diagram for the facility is attached.

Section 5

Plot Plan Drawn To Scale

A **plot plan drawn to scale** showing emissions points, roads, structures, tanks, and fences of property owned, leased, or under direct control of the applicant. This plot plan must clearly designate the restricted area as defined in UA1, Section 1-D.12. The unit numbering system should be consistent throughout this application.

A plot plan of the facility is attached on the following page. The blue lines surrounding the facility represent the process boundary. The double yellow line is the proposed haul road which connects the Chino and Cobre sections of the facility. The road extends from the Lampbright Stockpile at Chino up to Hanover Mountain and Continental Pit at the Cobre portion of the facility.



Section 6

All Calculations

Show all calculations used to determine both the hourly and annual controlled and uncontrolled emission rates. All calculations shall be performed keeping a minimum of three significant figures. Document the source of each emission factor used (if an emission rate is carried forward and not revised, then a statement to that effect is required). If identical units are being permitted and will be subject to the same operating conditions, submit calculations for only one unit and a note specifying what other units to which the calculations apply. All formulas and calculations used to calculate emissions must be submitted. The "Calculations" tab in the UA2 has been provided to allow calculations to be linked to the emissions tables. Add additional "Calc" tabs as needed. If the UA2 or other spread sheets are used, all calculation spread sheet(s) shall be submitted electronically in Microsoft Excel compatible format so that formulas and input values can be checked. Format all spread sheets and calculations such that the reviewer can follow the logic and verify the input values. Define all variables. If calculation spread sheets are not used, provide the original formulas with defined variables. Additionally, provide subsequent formulas showing the input values for each variable in the formula. All calculations, including those calculations are imbedded in the Calc tab of the UA2 portion of the application, the printed Calc tab(s), should be submitted under this section.

Tank Flashing Calculations: The information provided to the AQB shall include a discussion of the method used to estimate tank-flashing emissions, relative thresholds (i.e., NOI, permit, or major source (NSPS, PSD or Title V)), accuracy of the model, the input and output from simulation models and software, all calculations, documentation of any assumptions used, descriptions of sampling methods and conditions, copies of any lab sample analysis. If Hysis is used, all relevant input parameters shall be reported, including separator pressure, gas throughput, and all other relevant parameters necessary for flashing calculation.

SSM Calculations: It is the applicant's responsibility to provide an estimate of SSM emissions or to provide justification for not doing so. In this Section, provide emissions calculations for Startup, Shutdown, and Routine Maintenance (SSM) emissions listed in the Section 2 SSM and/or Section 22 GHG Tables and the rational for why the others are reported as zero (or left blank in the SSM/GHG Tables). Refer to "Guidance for Submittal of Startup, Shutdown, Maintenance Emissions in Permit Applications (http://www.nmenv.state.nm.us/aqb/permit/app_form.html) for more detailed instructions on calculating SSM emissions. If SSM emissions are greater than those reported in the Section 2, Requested Allowables Table, modeling may be required to ensure compliance with the standards whether the application is NSR or Title V. Refer to the Modeling Section of this application for more guidance on modeling requirements.

Glycol Dehydrator Calculations: The information provided to the AQB shall include the manufacturer's maximum design recirculation rate for the glycol pump. If GRI-Glycalc is used, the full input summary report shall be included as well as a copy of the gas analysis that was used.

Road Calculations: Calculate fugitive particulate emissions and enter haul road fugitives in Tables 2-A, 2-D and 2-E for:

1. If you transport raw material, process material and/or product into or out of or within the facility and have PER emissions greater than 0.5 tpy.
2. If you transport raw material, process material and/or product into or out of the facility more frequently than one round trip per day.

Significant Figures:

- A. All emissions standards are deemed to have at least two significant figures, but not more than three significant figures.
- B. At least 5 significant figures shall be retained in all intermediate calculations.
- C. In calculating emissions to determine compliance with an emission standard, the following rounding off procedures shall be used:

- (1) If the first digit to be discarded is less than the number 5, the last digit retained shall not be changed;
- (2) If the first digit discarded is greater than the number 5, or if it is the number 5 followed by at least one digit other than the number zero, the last figure retained shall be increased by one unit; **and**
- (3) If the first digit discarded is exactly the number 5, followed only by zeros, the last digit retained shall be rounded upward if it is an odd number, but no adjustment shall be made if it is an even number.
- (4) The final result of the calculation shall be expressed in the units of the standard.

Control Devices: In accordance with 20.2.72.203.A(3) and (8) NMAC, 20.2.70.300.D(5)(b) and (e) NMAC, and 20.2.73.200.B(7) NMAC, the permittee shall report all control devices and list each pollutant controlled by the control device regardless if the applicant takes credit for the reduction in emissions. The applicant can indicate in this section of the application if they chose to not take credit for the reduction in emission rates. For notices of intent submitted under 20.2.73 NMAC, only uncontrolled emission rates can be considered to determine applicability unless the state or federal Acts require the control. This information is necessary to determine if federally enforceable conditions are necessary for the control device, and/or if the control device produces its own regulated pollutants or increases emission rates of other pollutants.

Emissions which are affected by the proposed changes in this application are discussed here. Emissions which are not changing are not discussed here. Calculations for the unaffected emissions which have been previously reviewed and approved are being included for convenience purposes within this section

NEW AND REVISED EMISSIONS

CBM HR - Cobre Mine Haul Roads (Continental Pit/Hanover Mountain Mining & Magnetite Hauling)

Previous permits have included the unit CBM HR which consisted of haul road emissions due to the magnetite operation at Cobre. This emission source is being expanded to also include the proposed haul road emissions at Cobre due to mining of Continental Pit and Hanover Mountain.

Magnetite Hauling

The calculation methodology for the magnetite hauling portion of these emissions has not changed. The control efficiency applied to these emissions, however, is changing. The modeling report, found within Section 16, contains detailed information on which portions of the roads are controlled and by what control efficiency.

Hauling Associated with Mining Continental Pit and Hanover Mountain

Haul road emissions from mining Hanover Mountain and Continental Pit are calculated in a way that facilitates input in the air dispersion model. Emissions are calculated using Equations 1a and 2 of AP-42 Section 13.2.2. The controlled emissions for Control Scenario 1 include emission reductions of 80%, 88.8%, and 96.8% on portions of the haul roads associated with mining Continental Pit and Hanover Mountain. Control Scenario 2 is based on emission reductions of 88.8% on the haul roads associated with mining Continental Pit and Hanover Mountain. These control efficiencies are based on factors from the Western Regional Air Partnership (WRAP) Fugitive Dust Handbook, published September 7, 2006. The modeling report in Section 16 contains detailed information on which portions of the roads are controlled and by what control efficiency.

Alternative Operating Scenarios – Control Scenario 1 and Control Scenario 2

There are two alternative operating scenarios proposed which are based on potential throughputs. Scenario 1 is based on 126,000 TPD total throughput and Scenario 2 is based on 62,000 TPD total throughput. The scenario which yields greater emission rates is represented in the facility-wide emission summary table and Section 2 Table 2-E. Section 15 describes these control scenarios in greater detail. Calculations are provided within this section.

Mining Scenarios

Calculations are performed for seven mining scenarios which are used in the calculations and modeling. These seven mining scenarios represent mining Hanover Mountain from the peak to the base, a transition period between mining Hanover Mountain and Continental Pit, and mining only Continental Pit. For a more in-depth discussion of the mining scenarios, see the modeling report in Section 16. The highest emissions from the seven mining scenarios are represented in the facility-wide emission summary table and Section 2 Table 2-E.

CBM MH - Cobre Mine Material Handling (Continental/Hanover Mining & Magnetite Hauling)

Previous permits have included the unit CBM MH which consisted of material handling emissions due to the magnetite operation at Cobre. This emission source is being expanded to also include the material handling emissions at Cobre due to mining of Continental Pit and Hanover Mountain.

Particulate emissions from magnetite handling, material handling, and unloading are all based on emission factors in AP-42, Chapter 11.19.2, Table 11.19.2-2 Crushed Stone Processing and Pulverized Mineral Processing (August 2004) for Truck Unloading - Fragmented Stone. The basis for these emission factors is the PM₁₀ emission factor for truck unloading of fragmented stone in Table 11.19.2-2. This table provides a PM₁₀ emission factor, but does not provide PM_{2.5} or TSP emission factors. A PM_{2.5} emission factor was calculated from the available PM₁₀ emission factor using the ratio of 0.15 PM_{2.5} / PM₁₀ as recommended in the Background Document for AP-42, Chapter 13.2.4, Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006. An uncontrolled TSP emission factor was calculated from the available uncontrolled PM₁₀ emission factor using the TSP/ PM₁₀ ratio calculated from the following uncontrolled TSP and PM₁₀ emission factors in Table 11.19.2-2: Tertiary Crushing (0.0054/0.0024 = 2.25); Fines Crushing (0.0390/0.0150 = 2.60); Screening (0.025/0.0087 = 2.87; and Conveyor Transfer Point 0.0030/0.00110 = 2.73).

Magnetite Handling (Not changing as a result of this application)

The TAP emissions were calculated using a magnetite analysis to determine emissions as a percent of TSP. A composite assay of samples was used to determine the mass fraction of each TAP. The magnetite analysis data was obtained from Typical Magnetite Analysis, Phelps Dodge mining Company, Cobre Mining Division.

Material Handling

TAP emissions from material handling of waste rock and leach rock were calculated by multiplying the TSP emissions by the TAP content (%) in waste rock or in leach rock, respectively. Material handling at Hanover and Continental will occur with waste rock and leach rock, so conservative TAPs emissions for material handling are based on the higher TAP % available for waste rock or leach rock. For example, antimony emissions from material handling are based on antimony % in leach rock and barium emissions from material handling in the pit are based on barium % in waste rock.

Material Unloading

TAP emissions from material handling of waste rock and leach rock were calculated by multiplying the TSP emissions by the TAP content (%) in waste rock or in leach rock, respectively. Unloading TAP emissions at the south waste rock disposal facility (SWRDF) stockpile and the North Overburden stockpile use the waste rock emission factors as these are waste stockpiles. Unloading TAP emissions from Continental/Hanover to Lampbriht use the ore for leach emission factors as ore is taken to Lampbriht for the leach process.

CBM BLST - Cobre Mine Continental Pit/Hanover Mountain Blasting

Emissions resulting from blasting at Continental Pit/Hanover Mountain were calculated using the previously permitted methodology for blasting at Chino mine (unit CM BLST) with the new emission factors. These new emission factors have been used and approved by the NMED in the application for NSR Permit 2448-M2 for Freeport-McMoRan Tyrone Inc. The emissions were calculated using the following emission factors:

- The NO_x emission factor is the average of measurements from "NO_x Emissions from Blasting Operations in Open-Cut Coal Mining" by Moetaz I. Attalla, Stuart J. Day, Tony Lange, William Lilley, and Scott Morgan (2008).
- The CO emission factor is the average of the measurements in "Factors Affecting Anfo Fumes Production" by James H. Rowland III and Richard Mainiero (2001).
- The SO₂ emissions are based on a diesel sulfur content of 15 ppm assuming complete conversion to SO₂.

The calculation methodology used is the same as for unit CM BLST: the emission factor (lb pollutant/ton of blasting agent) is multiplied by the amount of blasting agent used (ton/year) to obtain the emission rate (lb pollutant/year). The maximum amount of blasting agent used at Cobre Mine is 110,000 pounds per day.

CM BLST - Chino Mine Blasting

Emissions resulting from blasting at Chino mine were calculated using the previously permitted methodology with new emission factors. These new emission factors have been used and approved by the NMED in the application for NSR Permit 2448-M2 for Freeport-McMoRan Tyrone Inc. Emission factors are being updated based on more recent data as part of this permit application. Previous calculations used AP-42 emission factors from Chapter 13.3. This section of AP-42 was published in 1980 and reformatted in 1995. The revised emissions were calculated using the following emission factors:

- The NO_x emission factor is the average of measurements from "NO_x Emissions from Blasting Operations in Open-Cut Coal Mining" by Moetaz I. Attalla, Stuart J. Day, Tony Lange, William Lilley, and Scott Morgan (2008).
- The CO emission factor is the average of the measurements in "Factors Affecting Anfo Fumes Production" by James H. Rowland III and Richard Mainiero (2001).
- The SO₂ emissions are based on a diesel sulfur content of 15 ppm assuming complete conversion to SO₂.

The calculation methodology used remains the same: the emission factor (lb pollutant/ton of blasting agent) is multiplied by the amount of blasting agent used (ton/year) to obtain the emission rate (lb pollutant/year). The maximum amount of blasting agent used at Chino Mine is 400,000 pounds per day.

SXEW SAT - SXEW Plant Acid Tankhouse

The calculation methodology for emissions from the Solvent extraction and electrowinning (SXEW) Plant Acid Tankhouse is as previously permitted. Emissions are estimated based on methodology in the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) 2001 Fundamentals Handbook. In this application, the wind speed is being updated from 6.49 mph to 10 mph based on recent on-site meteorological data gathered by Chino Mines.

SXEW 10MST - SXEW Plant Ten Mixer/Settler Tanks

The calculation methodology for emissions from the SXEW Plant mixer/settler tanks is as previously permitted. The highest emissions from any combination of tank contents is used as the emission rate for this source. Calculations were added to account for the use of diluent ORFOM SX-80. The addition of ORFOM SX-80 does not change the overall emission rate as this diluent does not produce the maximum emissions.

SXEW RT - SXEW Plant Raffinate Tank

The calculation methodology for emissions from the SXEW Plant Raffinate tank is as previously permitted. The highest emissions from any combination of tank contents is used as the emission rate for this source. Calculations were added to account for the use of diluent ORFOM SX-80. The addition of ORFOM SX-80 does not change the overall emission rate as this diluent does not produce the maximum emissions.

EXISTING EMISSIONS

Section 7

Information Used To Determine Emissions

Information Used to Determine Emissions shall include the following:

- ☒ If manufacturer data are used, include specifications for emissions units and control equipment, including control efficiencies specifications and sufficient engineering data for verification of control equipment operation, including design drawings, test reports, and design parameters that affect normal operation.
 - ☐ If test data are used, include a copy of the complete test report. If the test data are for an emissions unit other than the one being permitted, the emission units must be identical. Test data may not be used if any difference in operating conditions of the unit being permitted and the unit represented in the test report significantly effect emission rates.
 - ☒ If the most current copy of AP-42 is used, reference the section and date located at the bottom of the page. Include a copy of the page containing the emissions factors, and clearly mark the factors used in the calculations.
 - ☐ If an older version of AP-42 is used, include a complete copy of the section.
 - ☒ If an EPA document or other material is referenced, include a complete copy.
 - ☐ Fuel specifications sheet.
 - ☐ If computer models are used to estimate emissions, include an input summary (if available) and a detailed report, and a disk containing the input file(s) used to run the model. For tank-flashing emissions, include a discussion of the method used to estimate tank-flashing emissions, relative thresholds (i.e., permit or major source (NSPS, PSD or Title V)), accuracy of the model, the input and output from simulation models and software, all calculations, documentation of any assumptions used, descriptions of sampling methods and conditions, copies of any lab sample analysis.
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NEW AND REVISED EMISSIONS SUPPORTING DOCUMENTS

CBM HR

- AP-42 Section 13.2.2.2, Unpaved Roads
- Western Regional Air Partnership (WRAP) Fugitive Dust Handbook, published September 7, 2006
- Value for s based on NMED default value from
http://www.epa.gov/ttn/chief/ap42/ch13/related/r13s0202_dec03.xls

CBM MH

- Typical Magnetite Analysis, Phelps Dodge mining Company, Cobre Mining Division.
- AP-42, Chapter 11.19.2, Table 11.19.2-2 Crushed Stone Processing and Pulverized Mineral Processing (August 2004) for Truck Unloading - Fragmented Stone.
- Background Document for AP-42, Chapter 13.2.4, Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006.

CBM/CM BLST

- "*NO_x Emissions from Blasting Operations in Open-Cut Coal Mining*" by Moetaz I. Attalla, Stuart J. Day, Tony Lange, William Lilley, and Scott Morgan (2008).
- "*Factors Affecting Anfo Fumes Production*" by James H. Rowland III and Richard Mainiero (2001).

SXEW SAT

- Equations from the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) 2001 Fundamentals Handbook

SXEW 10 MST

- BHP Copper VOC study conducted in 1997
- MSDS for the following chemicals:
 - Acorga OR25 solvent extraction reagent
 - Acorga M5910 extraction reagent
 - Acorga M5640 solvent extraction reagent
 - LIX 684 N-LV
 - Escaid 115
 - Escaid 110
 - Gasoline, all grades
 - ShellSol D70
 - Penreco 170ES
 - ORFOM SX 80 solvent extraction diluent

SXEW RT

- BHP Copper VOC study conducted in 1997
- MSDS for the following chemicals:
 - Acorga OR25 solvent extraction reagent
 - Acorga M5910 extraction reagent
 - Acorga M5640 solvent extraction reagent
 - LIX 684 N-LV
 - Escaid 115
 - Escaid 110
 - Gasoline, all grades
 - ShellSol D70
 - Penreco 170ES
 - ORFOM SX 80 solvent extraction diluent

UNCHANGED EMISSIONS SUPPORTING DOCUMENTS

CB EGEN2 and CB EGEN3

- Caterpillar Model D399 data sheet
- AP-42 Section 3.4 "Large Stationary Diesel and All Stationary Dual-fuel Engines" (10/96) Tables 3.4-1, 3.4-2, and 3.4-4
- 40 CFR 98 Table C-1, C-2
- 40 CFR 98 Subpart A, Table A-1

CB TLNGS

- AP-42, Section 13.2.5, Industrial Wind Erosion (11/06).

CM HR

- AP-42 Section 13.2.2, Unpaved Roads
- Value for s based on NMED default value of 3.9% from http://www.epa.gov/ttn/chief/ap42/ch13/related/r13s0202_dec03.xls

CM MH

- Chino TRI Assay data provided by Clyde Durham 1/28/11
- AP-42, Chapter 11.19.2, Table 11.19.2-2
- Background Document for AP-42, Chapter 13.2.4, Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006.

CM TLNGS

- AP-42, Section 13.2.5, Industrial Wind Erosion (11/06).

CV-01C, SAG-F1, SCDP

- Chino TRI data received from Clyde Durham 1/28/11 email
- Table 11.19.2-2 of USEPA AP-42
- Background Document for AP-42, Chapter 13.2.4, Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006.

F-2-1-1.4

- AP-42 Chapter 3.1 Stationary Gas Turbine Table 3.1-3
- 40 CFR 98 Table C-1, C-2
- 40 CFR 98 Subpart A, Table A-1

F-2-1-1.5

- AP-42, Chapter 1.4, Natural Gas Combustion Tables 1.4-2 and 1.4-3
- 40 CFR 98 Table C-1, C-2
- 40 CFR 98 Subpart A, Table A-1

F-2-2-1

- AP-42 Section 13.4, Wet Cooling Towers (1/95)
- *"Calculating Realistic PM₁₀ Emissions from Cooling Towers"* by Joel Reisman and Gordon Frisbie.

FLTR-BLND

- AP-42 Table 11.19.2-2 in "Crushed Stone Processing and Pulverized Mineral Processing" for uncontrolled Conveyor Transfer Point (08/2004)
- AP-42 Table 11.24-2 in "Metallic Minerals Processing" for Material handling and transfer--all minerals except bauxite (01/1995).

IC-01

- Chino TRI data received from Clyde Durham 1/28/11 email
- Stack test data conducted in October 2008

LHS-01, LUS-01

- Table 11.17-4 of AP-42 Section 11.17 – Lime Manufacturing
- Background Document for AP-42, Chapter 13.2.4, Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006

PC Dump

- Chino TRI data received from Clyde Durham 1/28/11 email
- Table 11.19.2-2, of AP-42 Section 11.19.2 Crushed Stone Processing and Pulverized Mineral Processing
- Background Document for AP-42, Chapter 13.2.4, Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006

PC-01

- Chino TRI data received from Clyde Durham 1/28/11 email

CH SCRIN

- AP-42 Section 13.2.4 Drop Equation
- AP-42, Chapter 11.19.2, Crushed Stone Processing and Pulverized Mineral Processing, Table 11.19.2-2
- Background Document for AP-42, Chapter 13.2.4, Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006

CB SCRIN

- AP-42, Section 13.2.4 Drop equation
- AP-42, Chapter 11.19.2, Crushed Stone Processing and Pulverized Mineral Processing, Table 11.19.2-2
- Background Document for AP-42, Chapter 13.2.4, Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006

CH SCRIN ENG

- Deutz Model BF4M2012 data sheet
- AP-42 Section 3.3 "Gasoline And Diesel Industrial Engines", Table 3.3-1, Table 3.3-2
- 40 CFR 98 Table C-1, C-2
- 40 CFR 98 Subpart A, Table A-1

CB SCRIN ENG

- CAT specification sheet for C6.6 ACERT industrial open power unit
- AP-42 Section 3.3 "Gasoline And Diesel Industrial Engines", Table 3.3-1, Table 3.3-2
- 40 CFR 98 Table C-1, C-2
- 40 CFR 98 Subpart A, Table A-1

SXEW Boilers

- Appendix K-2 of undated US Department of Energy document of Emission Factors
- AP-42 Section 1.5 "Liquefied Petroleum Gas Combustion" (7/08), Table 1.5-1
- 40 CFR 98 Table C-1, C-2
- 40 CFR 98 Subpart A, Table A-1

GDF

- AP-42, Table 5.2-7

NEW AND REVISED EMISSIONS SUPPORTING DOCUMENTS

UNCHANGED EMISSIONS SUPPORTING DOCUMENTS

Section 8

Map(s)

A map such as a 7.5 minute topographic quadrangle showing the exact location of the source. The map shall also include the following:

The UTM or Longitudinal coordinate system on both axes	An indicator showing which direction is north
A minimum radius around the plant of 0.8km (0.5 miles)	Access and haul roads
Topographic features of the area	Facility property boundaries
The name of the map	The area which will be restricted to public access
A graphical scale	

A map of the facility is attached.

Section 9

Proof of Public Notice

(for NSR applications submitting under 20.2.72 or 20.2.74 NMAC)

(This proof is required by: 20.2.72.203.A.14 NMAC "Documentary Proof of applicant's public notice")

☒ **I have read the AQB "Guidelines for Public Notification for Air Quality Permit Applications"**

This document provides detailed instructions about public notice requirements for various permitting actions. It also provides public notice examples and certification forms. Material mistakes in the public notice will require a re-notice before issuance of the permit.

Unless otherwise allowed elsewhere in this document, the following items document proof of the applicant's Public Notification. Please include this page in your proof of public notice submittal with checkmarks indicating which documents are being submitted with the application.

New Permit and **Significant Permit Revision** public notices must include all items in this list.

Technical Revision public notices require only items 1, 5, 9, and 10.

Per the Guidelines for Public Notification document mentioned above, include:

1. ☒ A copy of the certified letter receipts with post marks (20.2.72.203.B NMAC)
 2. ☒ A list of the places where the public notice has been posted in at least four publicly accessible and conspicuous places, including the proposed or existing facility entrance. (e.g: post office, library, grocery, etc.)
 3. ☒ A copy of the property tax record (20.2.72.203.B NMAC).
 4. ☒ A sample of the letters sent to the owners of record.
 5. ☒ A sample of the letters sent to counties, municipalities, and Indian tribes.
 6. ☒ A sample of the public notice posted and a verification of the local postings.
 7. ☒ A table of the noticed citizens, counties, municipalities and tribes and to whom the notices were sent in each group.
 8. ☒ A copy of the public service announcement (PSA) sent to a local radio station and documentary proof of submittal.
 9. ☒ A copy of the classified or legal ad including the page header (date and newspaper title) or its affidavit of publication stating the ad date, and a copy of the ad. When appropriate, this ad shall be printed in both English and Spanish.
 10. ☒ A copy of the display ad including the page header (date and newspaper title) or its affidavit of publication stating the ad date, and a copy of the ad. When appropriate, this ad shall be printed in both English and Spanish.
 11. ☒ A map with a graphic scale showing the facility boundary and the surrounding area in which owners of record were notified by mail. This is necessary for verification that the correct facility boundary was used in determining distance for notifying land owners of record.
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Proof of public notice is attached.

Section 10

Written Description of the Routine Operations of the Facility

A written description of the routine operations of the facility. Include a description of how each piece of equipment will be operated, how controls will be used, and the fate of both the products and waste generated. For modifications and/or revisions, explain how the changes will affect the existing process. In a separate paragraph describe the major process bottlenecks that limit production. The purpose of this description is to provide sufficient information about plant operations for the permit writer to determine appropriate emission sources.

10.1 CURRENT FACILITY

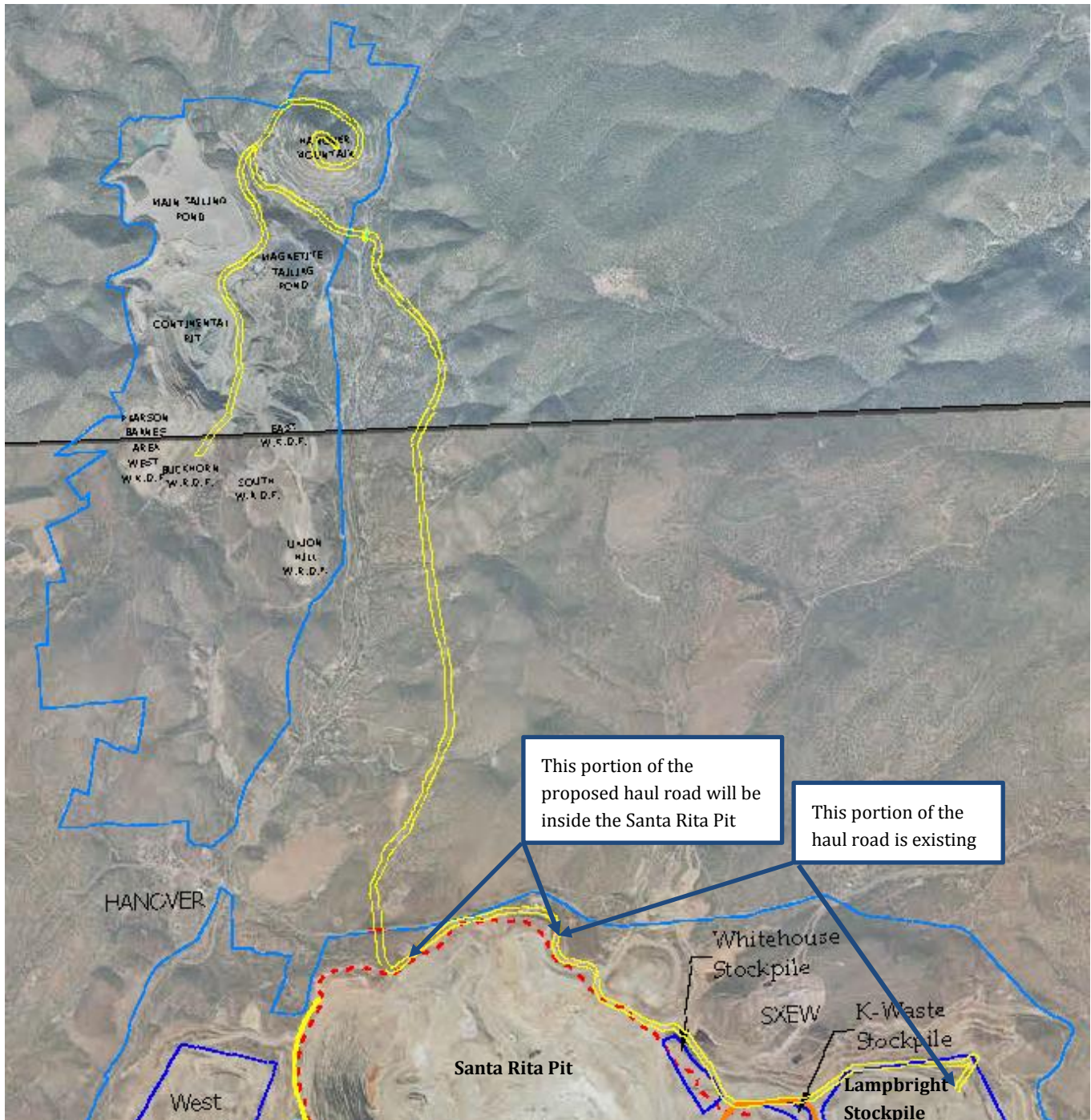
The primary purpose of the Chino mine is to produce copper cathode using the Solvent Extraction – Electro-winning (SXEW) process and produce copper concentrate using a wet flotation process. Mine operations associated with the Santa Rita Pit consist of blasting, loading, hauling, placement of waste rock and leach rock on stock piles, and transport of concentrator ore to the primary crusher. Concentrate slurry from the Ivanhoe Concentrator travels approximately seven miles by pipeline to the filter and blending plants near Hurley, New Mexico where the slurry is dewatered and loaded into rail cars for transport to off-site smelters for further processing.

Ancillary operations at Chino include a portable screening plant operated in the pit area and operation of the Chino Power Plant near Hurley. The Santa Rita pit is mined and copper ore is recovered either through milling and concentrating or leaching. Air emissions result from operations including material handling, truck hauling, copper ore recovery, and blasting. The Cobre mine portion of the facility's primary activity consists of a magnetite screening plant, loading of magnetite into over-the-road trucks and rail cars, and transportation to off-site customers.

10.2 PROPOSED CHANGES

The primary purpose of the proposed action is to resume mining operations at Cobre. Hanover Mountain and the currently inactive Continental Pit will be mined for copper ore. According to the current mine plan, Hanover will be mined first with Continental Pit becoming active as the quantity of copper ore in Hanover begins to decline. The processing of mined copper ore will remain at Chino. Ore from Hanover and Continental will be sent to Chino via haul truck on a proposed new haul road connecting the two facilities. Mining of Santa Rita Pit at Chino and the magnetite operation at Cobre will not be affected by the proposed operations at Cobre.

Chino Mines will be adding a new haul road to connect Chino and Cobre. Figure 1 shows this proposed haul road as double yellow lines. The eastern portion of the road between Lampbright stockpile and Santa Rita Pit is existing. A portion of this road is located on a bench inside Santa Rita Pit. Depending on the mining throughput from Continental Pit and Hanover Mountain, one of two emission control scenarios will be used. These two control scenarios serve as alternative operating scenarios and are described in detail in Section 15. The use of two operating scenarios would allow Chino Mines to adjust the amount and type of emission control necessary based on the mining throughputs.

Figure 1 - Proposed Haul Road Connecting Chino and Cobre (Shown as double yellow lines except where noted)

Section 11

Source Determination

Source submitting under 20.2.70, 20.2.72, 20.2.73, and 20.2.74 NMAC

Sources applying for a construction permit, PSD permit, or operating permit shall evaluate surrounding and/or associated sources (including those sources directly connected to this source for business reasons) and complete this section. Responses to the following questions shall be consistent with the Air Quality Bureau's permitting guidance, Single Source Determination Guidance, which may be found on the Applications Page in the Permitting Section of the Air Quality Bureau website.

Typically, buildings, structures, installations, or facilities that have the same SIC code, that are under common ownership or control, and that are contiguous or adjacent constitute a single stationary source for 20.2.70, 20.2.72, 20.2.73, and 20.2.74 NMAC applicability purposes. Submission of your analysis of these factors in support of the responses below is optional, unless requested by NMED.

A. Identify the emission sources evaluated in this section (list and describe):

See Table 2-A in Section 2 of this application.

B. Apply the 3 criteria for determining a single source:

SIC Code: Surrounding or associated sources belong to the same 2-digit industrial grouping (2-digit SIC code) as this facility, OR surrounding or associated sources that belong to different 2-digit SIC codes are support facilities for this source.

☒ **Yes** ☐ **No**

Common Ownership or Control: Surrounding or associated sources are under common ownership or control as this source.

☒ **Yes** ☐ **No**

Contiguous or Adjacent: Surrounding or associated sources are contiguous or adjacent with this source.

☒ **Yes** ☐ **No**

C. Make a determination:

☒ The source, as described in this application, constitutes the entire source for 20.2.70, 20.2.72, 20.2.73, or 20.2.74 NMAC applicability purposes. If in "A" above you evaluated only the source that is the subject of this application, all "**YES**" boxes should be checked. If in "A" above you evaluated other sources as well, you must check **AT LEAST ONE** of the boxes "**NO**" to conclude that the source, as described in the application, is the entire source for 20.2.70, 20.2.72, 20.2.73, and 20.2.74 NMAC applicability purposes.

☐ The source, as described in this application, **does not** constitute the entire source for 20.2.70, 20.2.72, 20.2.73, or 20.2.74 NMAC applicability purposes (A permit may be issued for a portion of a source). The entire source consists of the following facilities or emissions sources (list and describe):

Section 12

Section 12.A

PSD Applicability Determination for All Sources

(Submitting under 20.2.72, 20.2.74 NMAC)

A PSD applicability determination for all sources. For sources applying for a significant permit revision, apply the applicable requirements of 20.2.74.AG and 20.2.74.200 NMAC and to determine whether this facility is a major or minor PSD source, and whether this modification is a major or a minor PSD modification. It may be helpful to refer to the procedures for Determining the Net Emissions Change at a Source as specified by Table A-5 (Page A.45) of the EPA New Source Review Workshop Manual to determine if the revision is subject to PSD review.

A. This facility is:

- ☒ a minor PSD source before and after this modification (if so, delete C and D below).
- ☐ a major PSD source before this modification. This modification will make this a PSD minor source.
- ☐ an existing PSD Major Source that has never had a major modification requiring a BACT analysis.
- ☐ an existing PSD Major Source that has had a major modification requiring a BACT analysis
- ☐ a new PSD Major Source after this modification.

B. This facility is a PSD minor source before and after this modification, therefore there is no project.

Section 13

Discussion Demonstrating Compliance With Each Applicable State & Federal Regulation

Provide a discussion demonstrating compliance with applicable state & federal regulation. If there is a state or federal regulation (other than those listed here) for your facility's source category that does not apply to your facility, but seems on the surface that it should apply, add the regulation to the appropriate table below and provide the analysis. Examples of regulatory requirements that may or may not apply to your facility include 40 CFR 60 Subpart OOO (crushers), 40 CFR 63 Subpart HHH (HAPs), or 20.2.74 NMAC (PSD major sources). We don't want a discussion of every non-applicable regulation, but if there is questionable applicability, explain why it does not apply. All input cells should be filled in, even if the response is 'No' or 'N/A'.

In the "Justification" column, identify the criteria that are critical to the applicability determination, numbering each. For each unit listed in the "Applies to Unit No(s)" column, after each listed unit, include the number(s) of the criteria that made the regulation applicable. For example, TK-1 & TK-2 would be listed as: TK-1 (1, 3, 4), TK-2 (1, 2, 4). Doing so will provide the applicability criteria for each unit, while also minimizing the length of these tables.

As this table will become part of the SOB, please do not change the any formatting in the table, especially the width of the table.

If this application includes any proposed exemptions from otherwise applicable requirements, provide a narrative explanation of these proposed exemptions. These exemptions are from specific applicable requirements, which are spelled out in the requirements themselves, not exemptions from 20.2.70 NMAC or 20.2.72 NMAC.

Table for Applicable STATE REGULATIONS:

<u>STATE REGU- LATION S CITATION</u>	Title	Applies to Entire Facility	Applies to Unit No(s).	Federa lly Enforc e- able	Does Not Apply	JUSTIFICATION: Identify the applicability criteria, numbering each (i.e. 1. Post 7/23/84, 2. 75 m ³ , 3. VOL)
20.2.3 NMAC	Ambient Air Quality Standards NMAAQS	X	N/A	Yes	N/A	20.2.3 NMAC is a SIP approved regulation that limits the maximum allowable concentration of Total Suspended Particulates, Sulfur Compounds, Carbon Monoxide and Nitrogen Dioxide. The facility meets maximum allowable concentrations of TSP, SO ₂ , H ₂ S, NO _x , and CO under this regulation.
20.2.7 NMAC	Excess Emissions	X	N/A	Yes	N/A	This regulation establishes requirements for the facility if operations at the facility result in any excess emissions. The owner or operator will operate the source at the facility having an excess emission, to the extent practicable, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions. The facility will also notify the NMED of any excess emission per 20.2.7.110 NMAC.
20.2.33 NMAC	Gas Burning Equipment - Nitrogen Dioxide	N/A	N/A	Yes	X	This facility does not have gas burning equipment having a heat input of greater than 1,000,000 million British Thermal Units per year per unit. This regulation does not apply.

<u>STATE REGU- LATION S CITATION</u>	Title	Applies to Entire Facility	Applies to Unit No(s).	Federa lly Enforc e- able	Does Not Apply	JUSTIFICATION: Identify the applicability criteria, numbering each (i.e. 1. Post 7/23/84, 2. 75 m ³ , 3. VOL)
20.2.34 NMAC	Oil Burning Equipment: NO ₂	N/A	N/A	Yes	X	This facility does not have oil burning equipment having a heat input of greater than 1,000,000 million British Thermal Units per year per unit. The facility is not subject to this regulation and does not have emission sources that meet the applicability requirements under 20.2.34.108 NMAC.
20.2.35 NMAC	Natural Gas Processing Plant – Sulfur	N/A	N/A	Yes	X	The purpose of this regulation is to establish sulfur emissions standards for natural gas processing plants [20.2.35.6 NMAC]. This facility is not a natural gas processing plant, as defined in the regulation [20.2.35.7 NMAC]. As this facility is not defined as a natural gas processing plant under this regulation, the facility is not subject to this regulation.
20.2.37 NMAC	Petroleum Processing Facilities	N/A	N/A	No	X	The purpose of this regulation is to minimize emissions from petroleum or natural gas processing facilities [20.2.37.6 NMAC]. This facility not a natural gas or petroleum processing facility, as defined in the regulation [20.2.37.7 NMAC]. As this facility is not defined as a natural gas or petroleum processing facility, the facility is not subject to this regulation.
20.2.38 NMAC	Hydrocarbon Storage Facility	N/A	N/A	No	X	This regulation applies to storage facilities which are operated in conjunction with a petroleum production or petroleum processing facility. The Chino facility is not a petroleum production or processing facility, therefore this regulation does not apply.
20.2.39 NMAC	Sulfur Recovery Plant - Sulfur	N/A	N/A	No	X	This regulation establishes sulfur emission standards for sulfur recovery plants which are not part of petroleum or natural gas processing facilities. This regulation does not apply to this facility because it does not have elements of a sulfur recovery plant.
20.2.61.10 9 NMAC	Smoke & Visible Emissions	N/A	CB EGEN2, CB EGEN3, F-2-1-1.4, F- 2-1-1.5, CH SCRN ENG, CB SCRN ENG, SXEW Boilers No. 1-3,	Yes	N/A	All stationary combustion equipment (emergency generators, boilers, heat recovery generator, engines, and turbine) at the facility are subject to this regulation and comply by limiting opacity to a maximum of 20%.
20.2.70 NMAC	Operating Permits	X	N/A	Yes	N/A	This regulation establishes requirements for obtaining an operating permit. This regulation does apply as the facility is a Title V major source of NO _x , CO, PM ₁₀ , and PM _{2.5} . This facility operates under Title V Permit P066-R2.
20.2.71 NMAC	Operating Permit Fees	X	N/A	Yes	N/A	This regulation establishes a schedule of operating permit emission fees. The facility is subject to 20.2.70 NMAC and is therefore subject to requirements of this regulation.
20.2.72 NMAC	Construction Permits	X	N/A	Yes	N/A	This regulation establishes the requirements for obtaining a construction permit. The facility is a stationary source that has potential emission rates greater than 10 pounds per hour or 25 tons per year of any regulated air contaminant for which there is a National or New Mexico Air Quality Standard. The facility has a construction permit (NSR Permit) 0298-M6-R6 to meet the requirements of this regulation.

<u>STATE REGU- LATION S CITATION</u>	Title	Applies to Entire Facility	Applies to Unit No(s).	Federa lly Enforc e- able	Does Not Apply	JUSTIFICATION: Identify the applicability criteria, numbering each (i.e. 1. Post 7/23/84, 2. 75 m ³ , 3. VOL)
20.2.73 NMAC	NOI & Emissions Inventory Requirements	X	N/A	Yes	N/A	This regulation establishes emission inventory requirements. The facility meets the applicability requirements of 20.2.73.300 NMAC. The facility will meet all applicable reporting requirements under 20.2.73.300.B.1 NMAC.
20.2.74 NMAC	Permits – PSD	N/A	N/A	Yes	X	This regulation establishes requirements for obtaining a prevention of significant deterioration permit. Facility-wide non-fugitive emission rates are below PSD-major thresholds. This regulation does not apply.
20.2.75 NMAC	Construction Permit Fees	X	N/A	Yes	N/A	This regulation establishes the guidelines and requirements for construction permitting fees. This facility is subject to this regulation as 20.2.72 NMAC also applies.
20.2.77 NMAC	New Source Performance	N/A	F-2-1-1.5, F-2-1-1.4, PC-01, PC DUMP, CTS-01, CV-01A, CV-01B, CV-01C, SAG-F1, IC-01, SCDP, CB SCRNG, CH SCRNG, GENERAC1, GENERAC2, GENERAC3	Yes	N/A	This regulation establishes state authority to implement NSPS for stationary sources subject to 40 CFR 60. This regulation applies as the following NSPS subparts apply: <ul style="list-style-type: none"> - Subpart Dc – Unit F-2-1-1.5 is subject - Subpart GG – Unit F-2-1-1.4 is subject - Subpart LL – Metallic mineral processing units are subject: PC-01, PC DUMP, CTS-01, CV-01A, CV-01B, CV-01C, SAG-F1, IC 01, SCDP - Subpart IIII – Units CB SCRNG and CH SCRNG are subject - Subpart JJJJ – GENERAC1, GENERAC2, GENERAC3
20.2.78 NMAC	Emission Standards for HAPS	N/A	N/A	Yes	X	This regulation establishes state authority to implement emission standards for hazardous air pollutants subject to 40 CFR Part 61, as amended through December 31, 2010. This facility does not emit hazardous air pollutants which are subject to the requirements of 40 CFR Part 61 and is therefore not subject to this regulation.
20.2.79 NMAC	Permits – Nonattainment Areas	N/A	N/A	Yes	X	This regulation establishes the requirements for obtaining a nonattainment area permit. The facility is not located in a non-attainment area and therefore is not subject to this regulation.
20.2.80 NMAC	Stack Heights	N/A	N/A	Yes	X	This regulation establishes requirements for the evaluation of stack heights and other dispersion techniques. This regulation does not apply as all stacks at the facility follow good engineering practice.
20.2.82 NMAC	MACT Standards for source categories of HAPS	N/A	CB EGEN2, CB EGEN3, CH SCRNG, CB SCRNG, GDF	Yes	N/A	This regulation established state authority to implement MACT Standards for source categories of HAPS. This regulation applies to all sources emitting hazardous air pollutants, which are subject to the requirements of 40 CFR Part 63. This regulation applies as the following MACT subparts apply: <ul style="list-style-type: none"> - Subpart ZZZZ – The following engines are subject: CB EGEN2, CB EGEN3, CH SCRNG, CB SCRNG - Subpart CCCCC – Unit GDF is subject

Table for Applicable **FEDERAL REGULATIONS (Note: This is not an exhaustive list):**

<u>FEDERAL REGU- LATIONS CITATION</u>	Title	Applies to Entire Facility	Applies to Unit No(s).	Federally Enforce- able	Does Not Apply	JUSTIFICATION:
40 CFR 50	NAAQS	X	N/A	Yes	N/A	This regulation defines national ambient air quality standards. The facility meets all applicable national ambient air quality standards for NO _x , CO, SO ₂ , lead, ozone, PM ₁₀ , and PM _{2.5} under this regulation.
NSPS 40 CFR 60, Subpart A	General Provisions	N/A	F-2-1-1.5, F-2-1-1.4, PC-01, PC DUMP, CTS-01, CV-01A, CV-01B, CV-01C, SAG-F1, IC-01, SCDP, CB SCRNG, CH SCRNG, ENG, GENERAC1, GENERAC2, GENERAC3	Yes	N/A	This regulation defines general provisions for relevant standards that have been set under this part. This subpart applies as the following NSPS subparts apply: <ul style="list-style-type: none"> - Subpart Dc – Unit F-2-1-1.5 is subject - Subpart GG – Unit F-2-1-1.4 is subject - Subpart LL – Metallic mineral processing units are subject: PC-01, PC DUMP, CTS-01, CV-01A, CV-01B, CV-01C, SAG-F1, IC 01, SCDP - Subpart IIII – Units CB SCRNG and CH SCRNG are subject - Subpart JJJJ – GENERAC1, GENERAC2, GENERAC3
NSPS 40 CFR60.40a, Subpart Da	Subpart Da, Performance Standards for Electric Utility Steam Generating Units	N/A	N/A	Yes	X	This regulation establishes standards of performance for electric utility steam generating units. This regulation does not apply as this facility does not operate any electric utility steam generating units.
NSPS 40 CFR60.40b Subpart Db	Performance Standards for Industrial- Commercial- Institutional Steam Generating Units	N/A	N/A	Yes	X	This regulation establishes standards of performance for industrial-commercial-institutional steam generating units. This regulation does not apply because the facility's steam generating units do not have capacities which exceed the 100 MMBtu/hr threshold.
NSPS 40 CFR60.40b Subpart Dc	Performance standards for Small Industrial- Commercial- Institutional Steam Generating Units	N/A	F-2-1-1.5	Yes	N/A	This regulation establishes standards of performance for small industrial-commercial-institutional steam generating units. This regulation applies to unit F-2-1-1.5 as its heat input (48.8 MMBtu/hr) exceeds the 10 MMBtu/hr threshold. The SXEW Boilers No. 1, 2, and 3 are below the 10 MMBtu/hr threshold and are not subject.

<u>FEDERAL REGU- LATIONS CITATION</u>	Title	Applies to Entire Facility	Applies to Unit No(s).	Federally Enforce- able	Does Not Apply	JUSTIFICATION:
NSPS 40 CFR 60, Subpart Ka	Standards of Performance for Storage Vessels for Petroleum Liquids for which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984	N/A	N/A	Yes	X	This regulation establishes performance standards for storage vessels for petroleum liquids for which construction, reconstruction, or modification commenced after May 18, 1978, and prior to July 23, 1984. There are no petroleum liquid storage vessels located at the facility which are an affected facility under this subpart. Specifically, there are no storage vessels with capacity greater than 40,000 gallons which are used to store petroleum liquids as defined in §60.111a(b). Diesel fuel is not considered petroleum liquid under this definition. Accordingly, this regulation does not apply.
NSPS 40 CFR 60, Subpart Kb	Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984	N/A	N/A	Yes	X	<p>This regulation establishes performance standards for storage vessels with a capacity greater than or equal to 75 cubic meters (m³) that is used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification is commenced after July 23, 1984.</p> <p>This facility does not have any organic liquid storage vessels with capacities greater than or equal to 151 m³ storing a liquid with a maximum true vapor pressure less than 3.5 kilopascals (kPa) or with capacities greater than or equal to 75 m³ but less than 151 m³ storing a liquid with a maximum true vapor pressure less than 15.0 kPa; therefore, this regulation is not applicable §60.110b(b)].</p>
NSPS 40 CFR 60.330 Subpart GG	Stationary Gas Turbines	N/A	F-2-1-1.4	Yes	N/A	This regulations establishes standards of performance for stationary gas turbines with a heat input at a peak load equal to or greater than 10 MMBtu/hr based on the lower heating value of the fuel fired and have commenced construction, modification, or reconstruction after October 3, 1977. Unit F-2-1-1.4 has a heat input of 455 MMBtu/hr which exceeds the threshold and commenced construction after October 3, 1977. Accordingly, this regulation applies.
NSPS 40 60.380 Subpart LL	Performance Standards for Metallic Mineral Processing Plants	N/A	PC-01, PC DUMP, CTS-01, CV-01A, CV-01B, CV-01C, SAG-F1, IC-01, SCDP	Yes	N/A	The provisions of this subpart are applicable to the following affected facilities in metallic mineral processing plants: each crusher and screen in open-pit mines; each crusher, screen, bucket elevator, conveyor belt transfer point, thermal dryer, product packaging station, storage bin, enclosed storage area, truck loading station, truck unloading station, railcar loading station, and railcar unloading station at the mill or concentrator. This facility includes several units involved in metallic mineral (copper and molybdenum) processing, therefore this regulation is applicable.

<u>FEDERAL REGU- LATIONS CITATION</u>	Title	Applies to Entire Facility	Applies to Unit No(s).	Federally Enforce- able	Does Not Apply	JUSTIFICATION:
NSPS 40 CFR 60, Subpart KKK	Leaks of VOC from Onshore Gas Plants	N/A	N/A	Yes	X	This regulation establishes standards of performance for equipment leaks of VOC from onshore natural gas processing plants for which construction, reconstruction, or modification commenced after January 20, 1984, and on or before August 23, 2011. The facility is not a natural gas processing plant as defined in this regulation [40 CFR Part 60.631]. This regulation does not apply because this facility does not meet the definition of a natural gas processing plant as stated in the regulation.
NSPS 40 CFR Part 60 Subpart LLL	Standards of Performance for Onshore Natural Gas Processing: SO₂ Emissions	N/A	N/A	Yes	X	This regulation establishes standards of performance for SO ₂ emissions from onshore natural gas processing for which construction, reconstruction, or modification commenced after January 20, 1984 and on or before August 23, 2011. The facility does not have a sweetening unit or considered a natural gas processing plant and does not meet the applicability requirements of this regulation under 40 CFR Part 60.640 (a). The facility is not subject to this regulation.
NSPS 40 Part 60 Subpart OOO	Standards of Performance for Nonmetallic Mineral Processing Plants	N/A	N/A	Yes	X	This regulation establishes standards for the following affected facilities in fixed or portable nonmetallic mineral processing plants: each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station is an applicable unit. This facility does not process nonmetallic minerals, therefore this regulation is not applicable.
NSPS 40 CFR Part 60 Subpart IIII	Standards of Performance for Stationary Compression Ignition Internal Combustion Engines	N/A	CB SCRNG ENG, CH SCRNG ENG	Yes	N/A	This regulation establishes standards of performance for stationary compression ignition combustion engines. Engines CB EGEN2 and CB EGEN3 are emergency generator engines which commenced construction prior to July 11, 2005. These engines are not subject to this regulation. Engines CB SCRNG ENG and CH SCRNG ENG commenced construction after July 11, 2005 and were manufactured after April 1, 2006. Engine CB SCRNG ENG was manufactured in February 2012 and engine CH SCRNG ENG was manufactured in August 2006. These engines are subject to NSPS Subpart IIII.
NSPS 40 CFR Part 60 Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	N/A	GENERAC1, GENERAC2, GENERAC3	Yes	N/A	This regulation establishes standards of performance for stationary spark ignition combustion engines. Emergency units GENERAC1, GENERAC2, and GENERAC3 are stationary spark ignition engines which commenced construction after June 12, 2006. These engines are exempt equipment under 20.2.72 NMAC. These engines comply with applicable NSPS JJJJ standards. Other exempt spark ignition engines at this facility are non-road portable sources and are not subject to this standard.
NSPS 40 CFR Part 60 Subpart OOOO	Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution	N/A	N/A	Yes	X	The rule applies to "affected" facilities that are constructed, modified, or reconstructed after August 23, 2011 (40 CFR 60.5365): gas wells, including fractured and hydraulically refractured wells, centrifugal compressors, reciprocating compressors, pneumatic controllers, certain equipment at natural gas processing plants, sweetening units at natural gas processing plants, and storage vessels. The facility does not contain any "affected" facilities. This regulation is not applicable.

<u>FEDERAL REGU- LATIONS CITATION</u>	Title	Applies to Entire Facility	Applies to Unit No(s).	Federally Enforce- able	Does Not Apply	JUSTIFICATION:
NESHAP 40 CFR 61 Subpart A	General Provisions	N/A	N/A	Yes	X	This regulation defines general provisions for relevant standards that have been set under this part. This regulation does not apply to the facility because the facility does not emit or have the triggering substances on site and/or the facility is not involved in the triggering activity. The facility is not subject to this regulation. None of the subparts of Part 61 apply.
NESHAP 40 CFR 61 Subpart E	National Emission Standards for Mercury	N/A	N/A	Yes	X	This regulation establishes a national emission standard for mercury. The facility does not have stationary sources which process mercury ore to recover mercury, use mercury chlor-alkali cells to produce chlorine gas and alkali metal hydroxide, and incinerate or dry wastewater treatment plant sludge [40 CFR Part 61.50]. The facility is not subject to this regulation.
NESHAP 40 CFR 61 Subpart M	National Emission Standards for Asbestos	N/A	N/A	Yes	X	This regulation establishes a national emission standard for asbestos. During normal operation, this regulation is not applicable. However, during any asbestos demolition or renovation work, this subpart would apply.
NESHAP 40 CFR 61 Subpart V	National Emission Standards for Equipment Leaks (Fugitive Emission Sources)	N/A	N/A	Yes	X	This regulation establishes national emission standards for equipment leaks (fugitive emission sources). The facility does not have equipment that operates in volatile hazardous air pollutant (VHAP) service [40 CFR Part 61.240]. The regulated activities subject to this regulation do not take place at this facility. The facility is not subject to this regulation.
MACT 40 CFR 63, Subpart A	General Provisions	N/A	CB EGEN2, CB EGEN3, CH SCRNG, CB SCRNG, GDF	Yes	N/A	This regulation defines general provisions for relevant standards that have been set under this part. This subpart applies as the following MACT subparts apply: - Subpart ZZZZ – The following engines are subject: CB EGEN2, CB EGEN3, CH SCRNG, CB SCRNG - Subpart CCCCCC – Unit GDF is subject
MACT 40 CFR 63.760 Subpart HH	Oil and Natural Gas Production Facilities	N/A	N/A	Yes	X	This facility is a minor source for HAPs and is not equipped with any affected area sources as described pursuant to this MACT. This facility is not subject to the requirements of 40 CFR 63 Subpart HH.
MACT 40 CFR 63 Subpart HHH	Oil and Natural Gas Production Facilities	N/A	N/A	Yes	X	This subpart applies to owners and operators of natural gas transmission and storage facilities that transport or store natural gas prior to entering the pipeline to a local distribution company or to a final end user (if there is no local distribution company), and that are major sources of hazardous air pollutants (HAP) emissions as defined in §63.1271. This regulation does not apply because this facility is not a natural gas transmission or storage facility as defined in this regulation [40 CFR Part 63.1270(a)].
MACT 40 CFR 63	National Emissions	N/A	CB EGEN2, CB EGEN3,	Yes	N/A	This regulation defines national emissions standards for HAPs for stationary reciprocating Internal Combustion

<u>FEDERAL REGU- LATIONS CITATION</u>	Title	Applies to Entire Facility	Applies to Unit No(s).	Federally Enforce- able	Does Not Apply	JUSTIFICATION:
Subpart ZZZZ	Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE MACT)		CH SCRn, ENG, CB SCRn ENG, GENERAC1, GENERAC2, GENERAC3			Engines. Units CB EGEN2 and CB EGEN3 are existing stationary RICE located at an area source of HAPs as they commenced construction prior to June 12, 2006. These units must comply with the requirements in Table 2d and operating limitations in Table 2b of the subpart. Units CB SCRn ENG and CH SCRn ENG are new stationary RICE located at an area source of HAPs as the engines commenced construction after June 12, 2006. New compression ignition RICE at an area source of HAPs must meet the requirements of 40 CFR 63 Subpart ZZZZ by complying with the requirements of 40 CFR 60 Subpart IIII. Units GENERAC1 through GENERAC3 are new stationary RICE located at an area source of HAPs as the engines commenced construction after June 12, 2006. New spark ignition RICE at an area source of HAPs must meet the requirements of 40 CFR 63 Subpart ZZZZ by complying with the requirements of 40 CFR 60 Subpart JJJJ.
MACT 40 CFR 63 Subpart JJJJJ	National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources	N/A	N/A	Yes	X	This regulation defines national emission standards for HAPs for industrial, commercial, and institutional boilers at area sources of HAPs. The boilers at this facility are fueled by natural gas and LPG and therefore do not fit into any of the subcategories listed in § 63.11200. This facility therefore does not have an affected sources under this subpart. This regulation does not apply.
MACT 40 CFR 63, Subpart CCCCC	National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities	N/A	GDF	Yes	N/A	This subpart establishes national emission limitations and management practices for hazardous air pollutants (HAP) emitted from the loading of gasoline storage tanks at gasoline dispensing facilities (GDF). The affected source to which this subpart applies is each GDF that is located at an area source. This facility is an area source which has loading of gasoline storage tanks at gasoline dispensing facilities. This regulation applies.
NESHAP 40 CFR 64	Compliance Assurance Monitoring	N/A	N/A	Yes	X	This regulation defines compliance assurance monitoring. The facility does not use a control device to meet an emission standard or limitation for units with potential uncontrolled emissions greater than 100 tons per year of a regulated pollutant. This regulation does not apply.
NESHAP 40 CFR 68	Chemical Accident Prevention	N/A	N/A	Yes	X	The facility is not an affected facility because it does not have quantities of materials regulated by 40 CFR Part 68 that are in excess of the triggering threshold.
Title IV – Acid Rain 40 CFR 72	Acid Rain	N/A	N/A	Yes	X	This part establishes the acid rain program. This part does not apply because the facility is not covered by this regulation [40 CFR Part 72.6].

<u>FEDERAL REGU- LATIONS CITATION</u>	Title	Applies to Entire Facility	Applies to Unit No(s).	Federally Enforce- able	Does Not Apply	JUSTIFICATION:
Title IV – Acid Rain 40 CFR 73	Sulfur Dioxide Allowance Emissions	N/A	N/A	Yes	X	This regulation establishes sulfur dioxide allowance emissions for certain types of facilities. This part does not apply because the facility is not the type covered by this regulation [40 CFR Part 73.2].
Title IV – Acid Rain 40 CFR 76	Acid Rain Nitrogen Oxides Emission Reduction Program	N/A	N/A	Yes	X	This regulation establishes an acid rain nitrogen oxides emission reduction program. This regulation applies to each coal-fired utility unit that is subject to an acid rain emissions limitation or reduction requirement for SO ₂ . This part does not apply because the facility does not operate any coal-fired units [40 CFR Part 76.1].
Title VI – 40 CFR 82	Protection of Stratospheric Ozone	X	N/A	Yes	N/A	This regulation establishes a regulation for protection of the stratospheric ozone. The regulation is applicable because the facility does “service”, “maintain” or “repair” class I or class II appliances and “disposes” of the appliances [40 CFR Part 82.1(a)].

Section 14

Operational Plan to Mitigate Emissions

(submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

- ☐ **Title V Sources** (20.2.70 NMAC): By checking this box and certifying this application the permittee certifies that it has developed an Operational Plan to Mitigate Emissions During Startups, Shutdowns, and Emergencies defining the measures to be taken to mitigate source emissions during startups, shutdowns, and emergencies as required by 20.2.70.300.D.5(f) and (g) NMAC. This plan shall be kept on site to be made available to the Department upon request. This plan should not be submitted with this application.
- ☒ **NSR** (20.2.72 NMAC), **PSD** (20.2.74 NMAC) & **Nonattainment** (20.2.79 NMAC) **Sources:** By checking this box and certifying this application the permittee certifies that it has developed an Operational Plan to Mitigate Source Emissions During Malfunction, Startup, or Shutdown defining the measures to be taken to mitigate source emissions during malfunction, startup, or shutdown as required by 20.2.72.203.A.5 NMAC. This plan shall be kept on site to be made available to the Department upon request. This plan should not be submitted with this application.
- ☒ **Title V** (20.2.70 NMAC), **NSR** (20.2.72 NMAC), **PSD** (20.2.74 NMAC) & **Nonattainment** (20.2.79 NMAC) **Sources:** By checking this box and certifying this application the permittee certifies that it has established and implemented a Plan to Minimize Emissions During Routine or Predictable Startup, Shutdown, and Scheduled Maintenance through work practice standards and good air pollution control practices as required by 20.2.7.14.A and B NMAC. This plan shall be kept on site or at the nearest field office to be made available to the Department upon request. This plan should not be submitted with this application.
-

If an operational emergency does occur and excess emissions occur, Chino Mines will submit the required Excess Emissions Report as per 20.2.7 NMAC if any excess emissions occur beyond the requested total SSM emission limit. Corrective action to eliminate the excess emissions and prevent recurrence in the future will be undertaken as quickly as safety allows.

Section 15

Alternative Operating Scenarios

(submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

Alternative Operating Scenarios: Provide all information required by the department to define alternative operating scenarios. This includes process, material and product changes; facility emissions information; air pollution control equipment requirements; any applicable requirements; monitoring, recordkeeping, and reporting requirements; and compliance certification requirements. Please ensure applicable Tables in this application are clearly marked to show alternative operating scenario.

The proposed operations at Cobre will include mining the adjacent Hanover Mountain and mining the existing Continental Pit for copper ore. According to the current mine plan, Hanover will be mined first with Continental Pit becoming active as the quantity of copper ore in Hanover begins to decline. The use of two operating scenarios is proposed as this will allow Chino Mines to adjust the amount and type of emission control based on the mining throughputs.

Currently, fugitive emissions from hauling on unpaved roads at Chino are controlled based on Condition A112.C in Permit 0298-M6-R4 which requires that haul roads at the Chino facility are watered and treated by application of base course or other equally effective measures to control particulate emissions to 80% control efficiency. In order to further control fugitive haul road emissions, Chino Mines proposes to apply dust suppressant/dust binder and water on the proposed haul road between Chino and Cobre portions of the facility. This road has been designated as Road 3 in the air dispersion modeling and for the purposes of this discussion. The proposed haul road connecting Road 3 to the Hanover Mountain, designated as Road 5, would also be controlled with dust suppressant/dust binder and water during certain mining scenarios. The existing haul road at Cobre, designated as Road 4, will be subject to current control measures and a reduction of haul traffic speed to an average of 25 miles per hour. Figure 2 shows the locations of these roads. A detailed description of the proposed control measures is provided in this section.

In view of the above proposed control measures, Chino Mines proposes two alternative operating scenarios;

- Control Scenario 1 - control measures applied when total throughput exceeds 62,000 tons/day, up to a maximum total throughput of 126,000 tons/day
- Control Scenario 2 - control measures applied when total throughput is less or equal to 62,000 tons/day

CONTROL SCENARIO 1

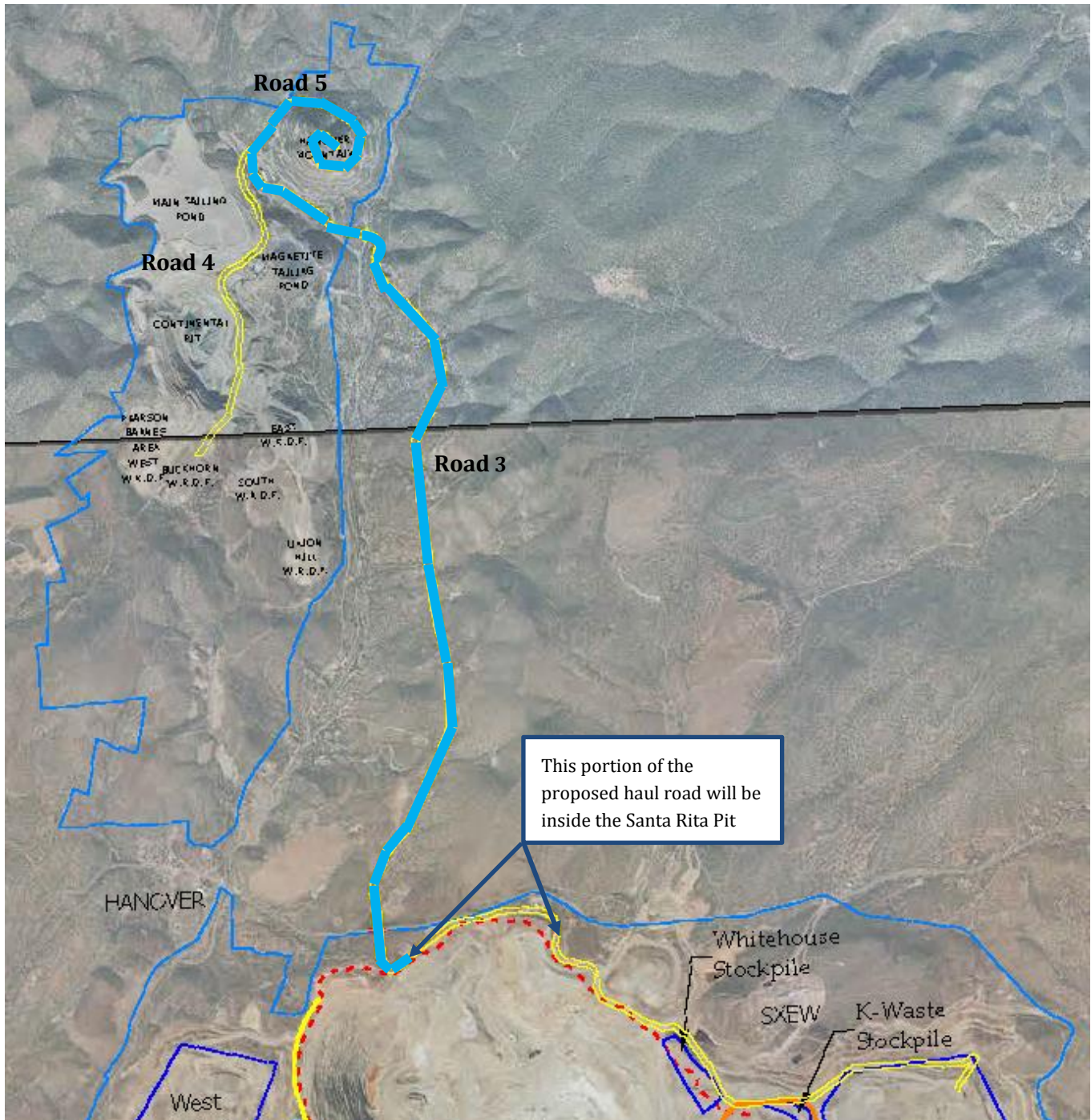
Control scenario 1 is based on a practical maximum throughput anticipated by Chino Mines from Hanover Mountain or Continental Pit of 126,000 TPD total material comprised of 85,000 TPD copper ore and 40,000 TPD waste. This throughput will be divided between Hanover Mountain and Continental Pit during the transition between mining the two locations. This control scenario would be used when throughputs are greater than those in Control Scenario 2. The proposed haul road connecting Chino and Cobre (Road 3) and the proposed haul road up to Hanover Mountain (Road 5) would have 96.8% control efficiency based on use of dust suppressant/dust binder, watering, and base course treatment/blading. The existing haul road at Cobre (Road 4) would have 88.8% control efficiency based on watering, base course treatment/blading, and average speed limit of 25 mph. Existing Chino roads would maintain the current 80% control based on watering and base course treatment/blading.

Control Scenario 1 - 126,000 TPD Total	
Mining Scenario	Proposed Control Efficiency
Scenario 1 – Mining Hanover Mountain Peak	Existing Chino Roads 1, 2 : 80% Proposed Road 3: 96.8% Existing Cobre Road 4: 88.8% Proposed Cobre Road 5: 96.8%
Scenario 2 - Mining Hanover Mountain	
Scenario 3 – Mining Hanover Mountain Middle	
Scenario 4 - Mining Hanover Mountain	Existing Chino Roads 1, 2 : 80% Proposed Road 3: 96.8% Existing Cobre Road 4: 88.8% Proposed Cobre Road 5: 88.8%
Scenario 5 – Mining Hanover Mountain Base	
Scenario 6 - Transition from Mining Hanover Mountain to Continental Pit	
Scenario 7 - Mining Continental Pit	

CONTROL SCENARIO 2

Control scenario 2 is based on a lower throughput of 62,000 TPD total material comprised of 22,000 TPD copper ore and 40,000 TPD waste. This throughput will be divided between Hanover Mountain and Continental Pit during the transition between mining the two locations. This control scenario would be used when production is lower, such as at the beginning or end of mining Hanover Mountain. The proposed haul road connecting Chino and Cobre and the proposed haul roads at Cobre would have 88.8% control efficiency based on watering, base course treatment/blading, and average speed limit of 25 mph. Existing roads would maintain the current 80% control based on watering and base course treatment/blading.

Control Scenario 2 – 62,000 TPD Total	
Mining Scenario	Proposed Control Efficiency
Scenario 1 – Mining Hanover Mountain Peak	Existing Chino Roads 1, 2 : 80% Proposed Road 3: 88.8% Existing Cobre Road 4: 88.8% Proposed Cobre Road 5: 88.8%
Scenario 2 - Mining Hanover Mountain	
Scenario 3 – Mining Hanover Mountain Middle	
Scenario 4 - Mining Hanover Mountain	
Scenario 5 – Mining Hanover Mountain Base	
Scenario 6 - Transition from Mining Hanover Mountain to Continental Pit	
Scenario 7 - Mining Continental Pit	

Figure 2 - Proposed Dust Suppressant/Dust Binder Control Sections (Shown in Blue)

EMISSION CONTROL MEASURES

Emission control measures are presented in this application as they were presented at the pre-application meeting between Chino Mines and the NMED on October 10, 2014. Control measures will be implemented on a daily basis during normal operating conditions except during rain/snow events. Additional controls will be applied during normal operations as needed.

Currently Permitted Control Measure - Base Course Treatment/Blading and Watering

Currently, emissions from hauling on unpaved roads at Chino are calculated based on Condition A112.C in Permit 0298-M6-R4 which requires that haul roads at the Cobre and Chino mines are watered and treated by application of base course or other equally effective measures to control particulate emissions. The permitted control efficiency associated with these measures is 80%.

Upon researching the control efficiency of water on haul roads it was confirmed that Arizona Department of Environmental Quality (ADEQ), Maricopa County Air Quality Department (MCAQD), and Clark County Air Quality Management (CCAQM) all routinely accept 90% control efficiency¹ for watering of haul roads without base course. The MCAQD emission inventory was based on their air quality permits database which was used to identify all dust control permits issued during 2008. A total of 4,622 permits were issued. Control efficiency of 90% was applied to the uncontrolled emissions calculations. This factor is in line with values applied in a number of earlier SIP documents for Maricopa and Clark Counties^{2,3,4,5}. As a conservative measure, the currently permitted 80% control efficiency for base course treatment/blading and watering was used in the calculations for control efficiencies in this section.

Proposed Control Measure - Average Speed Limit

Chino Mines is proposing to employ the use of an average speed limit on the proposed haul roads as a fugitive dust control measure. The Western Regional Air Partnership (WRAP) Fugitive Dust Handbook, published September 7, 2006, lists a PM₁₀ control efficiency of 44% on unpaved haul roads when limiting vehicle speed to 25 miles per hour.⁶ It is assumed due to the nature of the control that this efficiency would also apply to TSP and PM_{2.5}. Section 7 of this application includes the control factors from the WRAP Fugitive Dust Handbook.

The WRAP Fugitive Dust Handbook is a joint effort between the Western Regional Air Partnership's (WRAP) Dust Emissions Joint Forum (DEJF) and Countess Environmental of Westlake Village, California. The handbook provides methods of estimating uncontrolled fugitive dust emissions and emission reductions achieved by demonstrated control techniques. Emission estimation methodologies are based on EPA AP-42 publications and methods adopted by state and local air control agencies in the WRAP region (California, Nevada, and Arizona). State environmental agencies which have approved the use of fugitive dust control measures published in the WRAP Fugitive Dust Handbook include, but are not limited to, Montana⁷, Colorado⁸, and Indiana⁹.

¹ Revised MAG 1999 Serious Area Particulate Plan for PM₁₀ (Appendices volume two, page V-9, and vol. four), Feb. 2000.

² Revised MAG 1999 Serious Area Particulate Plan for PM₁₀, (Appendix C, Exhibit 3: Evaluation for Compliance with 24-Hour PM₁₀ Standard for West Chandler and Gilbert Microscale Sites, Arizona Department of Environmental Quality, June 1999, pp. 3-5 and 3- 9), Feb. 2000.2011

³ "Evaluation of Fugitive Dust Control in the Maricopa Co. PM₁₀ Nonattainment Area", report by ENSR in: Final Plan for Attainment of the 24-hour PM₁₀ Standard, ADEQ, May 1997, Appendix B.

⁴ Clark Co. PM₁₀ State Implementation Plan, June 2001, pg. L-5. (An 87% emission reduction percentage is assumed for watering at construction activities.)

⁵ 2008 PM₁₀ Periodic Emissions Inventory, Revised June 2011

⁶ WRAP Fugitive Dust Handbook, September 7, 2006, Page 3. Prepared by Countess Environmental, 4001 Whitesail Circle, Westlake Village, CA.

⁷ Montana Department of Environmental Quality

⁸ Colorado Department of Public Health and Environment

⁹ Indiana Department of Environmental Management

Proposed Control Measure - Dust Suppressant/Dust Binder

Chino Mines proposes to apply dust suppressant/dust binder on the proposed haul road connecting Chino and Cobre up to Hanover Mountain in order to further control fugitive haul road emissions. The use of dust suppressant/dust binder on the road up to Hanover Mountain (Road 5) is only necessary during the beginning of mining Hanover Mountain Figure 1 is a map showing the location of the roads which would use dust suppressant/dust binder (shown as blue sections of the yellow proposed haul road). The WRAP Fugitive Dust Handbook lists the control efficiency for applying dust suppressant as 84%.¹⁰ We believe using this control efficiency is conservative as it is common for manufacturers of dust suppressant/dust binders to guarantee a control efficiency of 90%. Section 7 of this application includes the control factors from the WRAP Fugitive Dust Handbook.

Application of the dust binder will follow an annual schedule per WRAP Fugitive Dust Handbook guidance. Chemical dust suppressant/binders are designed to alter the roadway, such as cementing loose material into a fairly impervious surface thus simulating a paved surface or forming a surface which attracts and retains moisture thus simulating wet suppression, notably salts.^{10,11,12,13} These methods are often supplemented by watering to control loose material that results out of gradual abrasion of the treated surface over time and also increases the moisture content. This in turn causes particles to conglomerate and reduces their likelihood of becoming suspended when vehicles pass over the surface.^{10,11,14} These methods result in instantaneous control effectiveness over an extended period after application.^{10,11,15} Also, since most dust suppressants/binders are hygroscopic and diluted with water prior to application, addition of water after palliative is applied to a road is conducive to enhance and extend its inherent effectiveness over a longer period of time until reapplication has become necessary.¹⁴ For example, hygroscopic salts such as Magnesium Chloride and Calcium Chloride especially have been used to treat unpaved road surfaces since the last century. Because of their hygroscopic properties they do not only retard evaporation from the road surface during the heat of the day, but draw moisture from their surrounding (environment) to produce a brine that in turn keeps the road surface moist (Larkin Laboratory, 1986).^{16,12}

Roads generally have higher moisture contents during cooler periods due to decrease in evaporation. Small increases in surface moisture may result in larger increases in control effectiveness (as referenced to the dry summertime conditions inherent in the AP-42 unpaved road predictive equation)¹⁰. In addition, application of chemical dust suppressant during cooler periods of the year may not be advisable for traffic safety reasons.¹¹

Chino Mines proposes to incorporate the above described control measures into its existing dust control plan to ensure treatment methods are employed in addition to Best Management Practices identified during the course of normal operations which may include but is not limited to regular haul road "housekeeping" activities.

¹⁰ WRAP Fugitive Dust Handbook, September 7, 2006, Page 3. Prepared by Countess Environmental, 4001 Whitesail Circle, Westlake Village, CA.

¹¹ Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures. Chapter 3

¹² Dust Control on Unpaved Roads, Wisconsin Transportation Bulletin. No. 13

¹³ Handbook for Dust Control in Mining, NIOSH, IC 9465, Information Circular/2003

¹⁴ Dust Control on Unpaved Roads, Minnesota Local Road Research Board; Bruan Intertec Pavement, Inc., 1992. Chapter 3

¹⁵ Dust Control on Unpaved Roads, Minnesota Local Road Research Board; Bruan Intertec Pavement, Inc., 1992. Chapter 3

¹⁶ Effectiveness and Environmental Impact of Road Dust Suppressants; Sander G. Thomas et al., Department of Civil Engineering, Colorado State University, 1993. Pp. 7

Combined Control Efficiency

The combination of control efficiencies due to base course treatment/blading and watering (A), average speed limit (B), and dust suppressant/dust binder (C) is calculated using the following methodology:

$$Control_{AB} = Control_A + (1 - Control_A) \times Control_B$$

$$Control_{ABC} = Control_{AB} + (1 - Control_{AB}) \times Control_C$$

State environmental agencies which have approved this method of combining dust control efficiencies include, but are not limited to, New Mexico¹⁷, Montana¹⁸, Colorado¹⁹, and Indiana²⁰.

Base Course Treatment/Blading, Watering, and Average Speed Limit

The calculation for combining control efficiencies from base course treatment/blading and watering (80%) and average speed limit reduction to 25 mph (44%) is shown below.

$$Control_{AB} = 0.8 + (1 - 0.8) \times 0.44$$

$$Control_{AB} = 0.888 = 88.8\%$$

Base Course Treatment/Blading, Watering, and Dust Suppressant/Dust Binder

The calculation for combining control efficiencies from base course treatment/blading and watering (80%) and dust suppressant/dust binder (84%) is shown below.

$$Control_{AC} = 0.8 + (1 - 0.8) \times 0.84$$

$$Control_{AC} = 0.968 = 96.8\%$$

Base Course Treatment/Blading, Watering, Average Speed Limit, and Dust Suppressant/Dust Binder

The calculation for combining control efficiencies from base course treatment/blading, watering, average speed limit reduction to 25 mph (88.8%), and dust suppressant/dust binder (84%) is shown below.

$$Control_{ABC} = 0.888 + (1 - 0.888) \times 0.84$$

$$Control_{ABC} = 0.98208 = 98.2\%$$

¹⁷ New Mexico Environment Department

¹⁸ Montana Department of Environmental Quality

¹⁹ Colorado Department of Public Health and Environment

²⁰ Indiana Department of Environmental Management

Summary

The WRAP Fugitive Dust Handbook contains methods based on EPA AP-42 publications and methods adopted by state and local air control agencies in the WRAP region. Use of this Handbook has been approved by various state agencies across the US including Montana, Colorado, and Indiana. Although the common manufacturer's guarantee for dust suppression/binding is 90% control efficiency, Chino Mines proposes to use the lower WRAP Fugitive Dust Handbook value of 84% as a conservative measure. Additionally, the currently permitted 80% control will be used in lieu of substantial evidence that supports that watering alone results in a 90% control efficiency in arid regions similar to those at the Chino facility. Areas where base course treatment/blading, watering, and dust suppressant/dust binder are used will have a combined control efficiency of 96.8%. Areas where base course treatment/blading, watering, and average speed limit reduction are used will have a control efficiency of 88.8%.

Section 16

Air Dispersion Modeling

NSR (20.2.72 NMAC) and PSD (20.2.74 NMAC) Modeling: Provide an air quality dispersion modeling demonstration (if applicable) as outlined in the Air Quality Bureau's Dispersion Modeling Guidelines. If air dispersion modeling has been waived for this permit application, attach the AQB Modeling Section modeling waiver documentation.

SSM Modeling: Applicants must conduct dispersion modeling for the total short term emissions using realistic worst case scenarios following guidance from the Air Quality Bureau's dispersion modeling section. Refer to "Guidance for Submittal of Startup, Shutdown, Maintenance Emissions in Permit Applications (http://www.nmenv.state.nm.us/aqb/permit/app_form.html) for more detailed instructions on SSM emissions modeling requirements.

Title V (20.2.70 NMAC) Modeling: Title V applications must specify the NSR Permit number for which air quality dispersion modeling was last submitted. Additionally, Title V facilities reporting new SSM emissions require modeling or a modeling waiver to demonstrate compliance with standards.

Air dispersion modeling is being submitted with this application. An approved air dispersion modeling protocol and a modeling report are attached.

Section 17

Compliance Test History

(submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

Compliance Test History Table

Unit No.	Test Description	Test Date
IC-01	Tested in accordance with EPA Test Methods for stack testing (Run 1) as required by NSR permit 0298-M6-R1.	9/20/13
IC-01	Tested in accordance with EPA Test Methods for stack testing (Run 2) as required by NSR permit 0298-M6-R1.	9/20/13
IC-01	Tested in accordance with EPA Test Methods for stack testing (Run 3) as required by NSR permit 0298-M6-R1.	9/20/13
PC-01	Tested in accordance with EPA Test Methods 1, 2, 3, 4, and 5 (Run 1) as required by NSR permit 0298-M6-R1.	9/19/13
PC-01	Tested in accordance with EPA Test Method 9 (Run 1) as required by NSR permit 0298-M6-R1.	9/19/13
PC-01	Tested in accordance with EPA Test Methods 1, 2, 3, 4, and 5 (Run 2) as required by NSR permit 0298-M6-R1.	9/19/13
PC-01	Tested in accordance with EPA Test Method 9 (Run 2) as required by NSR permit 0298-M6-R1.	9/19/13
PC-01	Tested in accordance with EPA Test Methods 1, 2, 3, 4, and 5 (Run 3) as required by NSR permit 0298-M6-R1.	9/19/13
PC-01	Tested in accordance with EPA Test Method 9 (Run 3) as required by NSR permit 0298-M6-R1.	9/19/13
F-2-1-1.4	Testing in accordance with EPA Test Method 19 (Run 1) as required by NSR permit 0298-M6-R1 and Title V permit P066-R2 sections A401(B) and B111A(1).	12/18/12
F-2-1-1.4	Testing in accordance with EPA Test Method 19 (Run 2) as required by NSR permit 0298-M6-R1 and Title V permit P066-R2 sections A401(B) and B111A(1).	12/18/12
F-2-1-1.4	Testing in accordance with EPA Test Method 19 (Run 3) as required by NSR permit 0298-M6-R1 and Title V permit P066-R2 sections A401(B) and B111A(1).	12/18/12

Section 20

Other Relevant Information

Other relevant information. Use this attachment to clarify any part in the application that you think needs explaining. Reference the section, table, column, and/or field. Include any additional text, tables, calculations or clarifying information.

Additionally, the applicant may propose specific permit language for AQB consideration. In the case of a revision to an existing permit, the applicant should provide the old language and the new language in track changes format to highlight the proposed changes. If proposing language for a new facility or language for a new unit, submit the proposed operating condition(s), along with the associated monitoring, recordkeeping, and reporting conditions. In either case, please limit the proposed language to the affected portion of the permit.

Currently, Condition A112.C in NSR Permit 0298-M6-R4 requires that “control measures shall be implemented when visible emissions are observed at the height of standard haul truck headlights.” When a dust plume of this size is seen, additional control measures are applied as necessary. This application proposes to use two control scenarios with 96.8% control efficiency and 88.8% control efficiency on the proposed haul road. Based on operational experience, Chino Mines believes that implementation of 96.8% control measure would correspond with visual emissions observed at the height of a standard haul truck engine guard.

Section 22

Green House Gas Applicability

(submitting under 20.2.70, 20.2.72, 20.2.73, 20.2.74 NMAC)

Title V (20.2.70 NMAC), NSR (20.2.72 NMAC), NOI (20.2.73 NMAC) and PSD (20.2.74 NMAC)

applicants must determine if they are subject to Title V permitting and/or PSD permitting for green house gas (GHG) emissions. GHG emissions are the sum of the aggregate group of six green house gases that include carbon dioxide (CO₂), nitrous oxide (N₂O), methane (CH₄), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). There are two thresholds that must be computed to determine applicability. The first threshold is the sum of GHG mass emissions in TPY. GHG mass emissions are the sum of the total annual tons of green house gases without adjusting with the GWPs. The second threshold is the sum of CO₂ equivalent (CO₂e) emissions in TPY GHG. CO₂e emissions are the sum of the mass emissions of each individual GHG multiplied by its global warming potential (GWP) found in Table A-1 in 40 CFR 98 Mandatory Greenhouse Gas Reporting.

Green House Gas TV and PSD Applicability Determination:

☐ **Notice of Intent Sources** (20.2.73 NMAC): By checking this box and certifying this application the applicant certifies that the facility, based upon the quantity of stack emissions, including start up, shut down, and maintenance emissions, is not subject to 20.2.70 NMAC or 20.2.74 NMAC for Green House Gas (GHG) Emissions. The Department may request the emissions calculations and other documents supporting this determination.

Minor NSR (20.2.72 NMAC), PSD Major (20.2.74 NMAC), and Title V (20.2.70 NMAC) sources must complete the steps outlined below to determine GHG TV and/or PSD applicability.

1. Calculate existing mass GHG and CO₂e emissions from your source. For PSD purposes, if this is a modification to an existing source, you must also calculate the increase in mass GHG and CO₂e emissions due to the modification. Start up, shut down, and maintenance emissions must be included.
2. See Tables 1 and 2 below and compare your mass GHG and CO₂e emissions to the appropriate category for your source.
3. If your source meets all of the criteria within a category, then you must obtain a PSD permit and/or a Title V permit for green house gas emissions.
4. If this is a GHG Major source with an existing BACT or if this is a permit application for a PSD or Title V permit with GHG above the thresholds in Tables 1 or 2, include the emissions calculations and supporting documents in the appropriate sections of this application unless instructed otherwise in Tables 1 or 2. Report GHG mass and CO₂e emissions in Table 2-P of this application unless instructed otherwise in Tables 1 or 2. Emissions are reported in **short** tons per year and represent each emission unit's Potential to Emit (PTE).

NSR (20.2.72 NMAC), PSD Major (20.2.74 NMAC), and Title V (20.2.70 NMAC): Based upon the GHG applicability criteria in this section the applicant certifies that the source is (check all that apply):

- ☐ Title V Minor and PSD Minor for GHG Emissions [The Department may request the emissions calculations and other documents supporting this determination.]
- ☒ Title V Major for GHG Emissions
- ☐ PSD Major for GHG Emissions

Table 1 - Title V Applicability Criteria

Table 1 - Title V Applicability Criteria		
On or after July 1, 2011, newly constructed source, or existing source that does not	On or after July 1, 2011, modification or Renewal to Existing Title V Source	Requirement

Table 1 - Title V Applicability Criteria

have a Title V permit		
<p>Source emits or has potential to emit (PTE) $\geq 100,000$ TPY CO₂e and 100 TPY GHG mass basis</p>	<p>Source emits or has PTE of $\geq 100,000$ TPY CO₂e and 100 TPY GHG mass basis</p>	<p><u>For new sources:</u> For a source that meets the criteria on July 1, 2011, submit a Title V permit application no later than June 30, 2012.</p> <p>For a source that meets the criteria after July 1, 2011, submit a Title V application within 12 months of becoming subject to the GHG operating permit program (12 months from commencement of operation of the new unit or modification that caused the source to be subject to Title V).</p> <p><u>For existing sources:</u> Include GHG with the next Title V application for a renewal or modification.</p> <p><u>For both new and existing sources:</u> Include in the TV application, GHG emissions calculations and supporting documents, report CO₂e and GHG emissions in Table 2-P, and address any applicable CAA requirements (e.g. PSD BACT, NSPS). If there are no applicable requirements and if GHG emissions have been reported to the Department under 20.2.73 NMAC, the requirements of the previous sentence do not apply, but changes in GHG emissions resulting in GHG emission limits must be calculated and reported in Table 2-P for Title V permit modifications. Typically GHG emission limits would be established only when there is an applicable requirement, such as a PSD GHG BACT or limits taken to be GHG synthetic minor.</p>

Table 2 - PSD Applicability Criteria

On or After July 1, 2011, New Source	On or After July 1, 2011, Major Modification to Existing PSD Major Source	On or After July 1, 2011, Modification to Existing PSD Minor Source	Requirement
Source is subject to PSD for another pollutant and GHG PTE is \geq than 75,000 tpy CO ₂ e	Source is subject to PSD for another regulated pollutant and net GHG emissions increase is $\geq 75,000$ tpy	Actual or potential emissions of GHGs from the modification is $\geq 100,000$ TPY CO ₂ e and $\geq 100/250$ TPY mass basis.	The source is subject to PSD permitting for GHG emissions and other regulated pollutants that are significant. In the application include GHG emissions

Table 2 - PSD Applicability Criteria

<p>or</p> <p>GHG PTE is $\geq 100,000$ TPY CO₂e and $\geq 100/250$ TPY mass basis</p>	<p>CO₂e and greater than zero TPY mass basis</p> <p>or</p> <p>existing source has GHG PTE $\geq 100,000$ TPY CO₂e and $\geq 100/250$ TPY mass basis and net emissions GHG increase is $\geq 75,000$ TPY CO₂e and greater than zero TPY mass basis</p>	<p>Minor PSD sources cannot net out of PSD review.</p>	<p>calculations and supporting documents, report CO₂e and GHG emissions in Table 2-P, complete a GHG BACT determination, and include the TPY CO₂e and GHG mass emissions in the public notice.</p> <p>Note: If a minor source permit is issued after January 2, 2011, but before July 1, 2011, and construction has not commenced by July 1, 2011, the permit must be cancelled, reopened, or an additional PSD permitting action taken, if the approved change/construction would trigger GHG PSD after July 1, 2011.</p>
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Additional Information:**Sources for Calculating GHG Emissions:**

- Manufacturer's Data
- AP-42 Compilation of Air Pollutant Emission Factors at <http://www.epa.gov/ttn/chief/ap42/index.html>
- EPA's Internet emission factor database WebFIRE at <http://cfpub.epa.gov/webfire/>
- Subparts C through UU of 40 CFR 98 Mandatory Green House Gas Reporting except that tons should be reported in short tons rather than in metric tons for the purpose of PSD and TV applicability.
- API Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Natural Gas Industry. August 2009 or most recent version.
- Sources listed on EPA's NSR Resources for Estimating GHG Emissions at <http://www.epa.gov/nsr/ghgresources.html>:
 - ENERGY STAR Industrial Sector Energy Guides and Plant Energy Performance Indicators (benchmarks) <http://www.energystar.gov>;
 - US EPA National Greenhouse Gas Inventory, <http://epa.gov/climatechange/emissions/usinventoryreport.html>;
 - EPA's Climate Leaders, <http://www.epa.gov/climateleaders/index.html>
 - EPA Voluntary Partnerships of GHG Reductions that include the landfill methane outreach program, the CHP partnership program, the Green Power Partnership, the Coalbed Methane Outreach program, the Natural Gas STAR program, and the Voluntary Aluminum Industrial Partnership.
 - SF Emission Reduction Partnership for the Magnesium Industry <http://www.epa.gov/highgwp/magnesium-sf6/index.html>
 - PFC Reduction/Climate Partnership for the Semiconductor Industry <http://www.epa.gov/highgwp/semiconductor-pfc/index.html>

Global Warming Potentials (GWP):

Applicants must use the Global Warming Potentials codified in Table A-1 of the most recent version of 40 CFR 98 Mandatory Greenhouse Gas Reporting. Please note that sources not subject to 40 CFR 98 and/or 20.2.300 NMAC may still be subject to the GHG PSD and/or TV permitting. The GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to that of one unit mass of CO₂ over a specified time period.

"Greenhouse gas" for the purpose of this part is defined as the aggregate group of the following six gases: carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. **(20.2.70.7.O NMAC, 20.2.74.7.Y NMAC)**. You may also find GHGs defined in 40 CFR 86.1818-12(a).

Short Tons:

Short tons for GHGs and other regulated pollutants are the standard unit of measure for PSD and title V permitting programs. 40 CFR 98 Mandatory Greenhouse Reporting requires metric tons.

1 metric ton = 1.10231 short tons (per Table A-2 to Subpart A of Part 98 – Units of Measure Conversions)

EPA's GHG Tailoring Rule:

To review EPA's final GHG Tailoring rule and pre-amble, See "Final GHG Tailoring Rule dated May 13, 2010 located on EPA's NSR Regulations Webpage or Federal Register June 3, 2010 Volume 75, No. 106

<http://www.epa.gov/nsr/actions.html>

EPA Permitting Guidance:

EPA's Permitting Guidance for GHG and other GHG information can be found on EPA's NSR Clear Air Act Permitting for Greenhouse Gases webpage.

<http://www.epa.gov/nsr/ghgpermitting.html>

Section 23: Certification

Company Name: Freeport-McMoRan Chino Mines Company

I, _____, hereby certify that the information and data submitted in this application are true and as accurate as possible, to the best of my knowledge and professional expertise and experience.

Signed this ____ day of _____, _____, upon my oath or affirmation, before a notary of the State of

_____.

*Signature

Date

Printed Name

Title

Scribed and sworn before me on this ____ day of _____, _____.

My authorization as a notary of the State of _____ expires on the

_____ day of _____, _____.

Notary's Signature

Date

Notary's Printed Name